Abstract

SciFi - A large Scintillating Fibre Tracker for LHCb

The LHCb detector will be upgraded during the Long Shutdown 2 (LS2) of the LHC in order to cope with higher luminosities and to read out the data at 40MHz using a trigger-less read-out system. Several sub-detectors must be ether redesigned or completely replaced to cope with higher occupancy. The current tracking detectors downstream of the LHCb dipole magnet will be replaced by the Scintillating Fibre (SciFi) Tracker. Concept, design and operational parameters are driven by the challenging LHC environment including significant ionising and neutron radiation levels. Over a total active surface of 360 m2 the SciFi Tracker will use scintillating fibres (Ø 0.25 mm) read out by Silicon Photomultipliers (SiPMs). The SciFI tracker project is now at the transition from R&D to series production. We will present its design, the production technology, and the latest lab and test beam results.